

## Questions and Comments on AWIs Black Blade Draft Study Plan (October 11, 2007)

Estep – November 5, 2007

Re: Preliminary results from 20 currently painted turbines: should be clear that the turbines used in this analysis were not part of a coordinated monitoring program for purposes of determining the effects of black blades. Much of the data used in the analysis is WRRS data, which is incidentally gathered and reported. Thus, while there may in fact be an actual reduction, the conclusions should be regarded as not scientifically supportable or repeatable.

Re: Winter seasonal shutdown exemption: the plan notes that an exemption from winter shutdown of all 920 AWI turbines is required to “properly evaluate the effect of WT black blade painting on avian collisions with WTs with respect to treated and control WTs, ...”. This is a bit misleading. Exemption of all 920 turbines is not required for the study. Only those turbines that are included in the study (170 treated and 136 control = 306) are *required* to be exempt from winter shutdown for purposes of evaluating the effects of blade painting.

Further, winter shut-down exemption is required only if the experimental design includes operations during winter months. While it is optimal to collect data during all seasons, it is possible to run the experiment only during the non-winter shutdown months and achieve reasonable results with respect to evaluating the differences between painted and unpainted turbines. Under this scenario, a winter shutdown exemption would not be required at all.

My point here is that by incorporating non-scientific justification for the study design (e.g., economics, public health, lack of certainty regarding the results of the winter shutdown) into the experimental design, the experimental design itself becomes unclear. The plan should clearly state up front the rationale for the study (including goals and objectives), the study design, and why AWI is seeking exemptions from other management actions. This should be followed by a complete description of the experimental design in a logical, scientifically-based step-by-step format.

Finally, also lacking is any discussion regarding how the results of the data would be used. Presumably, if the data indicate that the process reduces mortality, then this would lead to black blade painting throughout the Altamont. But the plan provides no process, commitments, or recommendations in this regard.

Re: Study design:

- the plan does not include any specific information on the process used to select the study turbines.

- it appears that the existing 20 painted turbines will remain in their current locations (however, this is unclear) – if so this violates randomness.
- three currently painted turbines are in strings selected as controls and will be replaced with white blades. Does this mean that only 17 of the 20 currently painted turbines will remain in their current locations?
- the plan does not describe the rationale – biological, logistical, or otherwise – for using only the southern portion of the APWRA in the selection process.
- the map provided in the plan indicating the locations of study turbines is unclear – probably due to scale.

Re: Data collection, management, and reporting: the plan indicates that while the MT can conduct monitoring, AWI will analyze data and prepare reports. Data collection, management, analysis, and reporting should be a function of the MT with oversight provided by the SRC.

Re: Future commitments. The primary charge of the SRC is to provide oversight for monitoring activities and implementation of management actions that contribute to a 50% reduction in mortality by November 2009. While exploring research opportunities that can help to achieve this goal is appropriate, this raises a few questions regarding the timing and future utility of blade painting as a management tool, including:

- At what point will we have data that addresses the question of effectiveness? If the study begins in fall of 2008, then one year of data will be available at the end of the Settlement Agreement deadline, but no related actions will have been implemented by that deadline.
- If it proves effective, will AWI commit to painting all 920 turbines?
- What assurances are there that AWI will make the technology available to other companies in the Altamont? If it can't be used by all, then there is only limited utility.
- Will other companies in the Altamont commit to paying for the technology and implementation if it proves effective?
- Is there applicability to new generation turbines? If not, what is the likely timing of repowering activities in the APWRA and would that timing negate any potential benefits of black blade painting.

#### Summary of the AWI Proposal

- AWI will fund an experiment to determine the effectiveness of black blade painting on avian collision mortality.

- For cost recovery purposes, AWI wants exemption for winter shutdown for all 920 of their turbines.
- The study will provide one full year of data by the end of the Settlement Agreement deadline – but no related management (e.g., additional blade painting) will be conducted prior to the deadline. Thus, at best there may be only negligible contribution to the 50% reduction requirement by the deadline. Also, the winter exemption could result in additional mortality that would otherwise have been avoided had those turbines been subject to the winter shutdown.
- However, black blade painting could have longer-term value if 1) the results are positive with respect to mortality reduction, 2) if the technology is available for all to use, and 3) if enough older generation turbines remain operational beyond 2009.